WEST Search History

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DATE: Thursday, January 29, 2004

Hide?	Set Name	Query	Hit Count
	DB=PGPB,USPT; PLUR=YES; OP=ADJ		
☐	L13	L12 and l8	4
☐	L12	19981117	4
☐	L11	L10 and repress$4	6
☐	L10	L9 and methionine	9
☐	L9	Homoserine O transsuccinylase or Homoserine succinyltransferase or Homoserine transsuccinylase	9
☐	L8	L7 or l6 or l5 or l4 or l3 or l2 or l1	27529
☐	L7	(536/23.2)!.ccls.	10255
☐	L6	(435/320.1)!.ccls.	22266
☐	L5	(435/252.3)!.ccls.	7819
☐	L4	(435/193)!.ccls.	1454
☐	L3	(435/183)!.ccls.	4355
☐	L2	(435/113)!.ccls.	87
☐	L1	(435/106)!.ccls.	442

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Search Results - Record(s) 1 through 4 of 4 returned.

☐ 1. Document ID: US 20020032323 A1

Using default format because multiple data bases are involved.

L13: Entry 1 of 4 File: PGPB Mar 14, 2002

PGPUB-DOCUMENT-NUMBER: 20020032323
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020032323 A1

TITLE: STREPTOCOCCUS PNEUMONIAE POLYNUCLEOTIDES AND SEQUENCES

PUBLICATION-DATE: March 14, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
KUNSCH, CHARLES A.	GAITHERSBURG	MD	US	
CHOI, GIL H.	ROCKVILLE	MD	US	
DILLON, PATRICK J.	CARLSBAD	CA	US	
ROSEN, CRAIG A.	LAYTONSVILLE	MD	US	
BARASH, STEVEN C.	ROCKVILLE	MD	US	
FANNON, MICHAEL R.	SILVER SPRING	MD	US	
DOUGHERTY, BRIAN A.	MT. AIRY	MD	US	

US-CL-CURRENT: 536/23.7; 435/252.3, 435/320.1, 435/69.1, 536/24.32

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 5939307 A

L13: Entry 2 of 4 File: USPT Aug 17, 1999

US-PAT-NO: 5939307
DOCUMENT-IDENTIFIER: US 5939307 A

TITLE: Strains of Escherichia coli, methods of preparing the same and use thereof in fermentation processes for l-threonine production

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 3. Document ID: US 5698418 A

L13: Entry 3 of 4 File: USPT Dec 16, 1997

US-PAT-NO: 5698418
DOCUMENT-IDENTIFIER: US 5698418 A

TITLE: Fermentation media and methods for controlling norleucine in polypeptides

☐ 4. Document ID: US 5622845 A

L13: Entry 4 of 4 File: USPT Apr 22, 1997

US-PAT-NO: 5622845
DOCUMENT-IDENTIFIER: US 5622845 A

TITLE: Fermentation method for producing norleucine

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

Terms	Documents
L12 and L8	4

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=> d l1 1-2
YOU HAVE REQUESTED DATA FROM FILE 'REGISTRY' - CONTINUE? (Y)/N:y



L1   ANSWER 1 OF 2  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   62213-51-8  REGISTRY
CN   Succinyltransferase, homoserine (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   E.C. 2.3.1.46
CN   Homoserine O-transsuccinylase
CN   Homoserine succinyltransferase
CN   Homoserine transsuccinylase
MF   Unspecified
CI   MAN
LC   STN Files:   BIOSIS, CA, CAPLUS, TOXCENTER, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
               9 REFERENCES IN FILE CA (1907 TO DATE)
               9 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1   ANSWER 2 OF 2  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   9030-70-0  REGISTRY
CN   Synthase, cystathionine .gamma.- (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   Cystathionine .gamma.-synthase
CN   Cystathionine .gamma.-synthetase
CN   Cystathionine synthase
CN   Cystathionine synthetase
CN   E.C. 4.2.99.9
CN   Homoserine O-transsuccinylase
CN   Homoserine transsuccinylase
CN   L-Cystathionine .gamma.-synthase
CN   O-Succinylhomoserine (thiol)-lyase
CN   O-Succinylhomoserine synthase
CN   O-Succinylhomoserine synthetase
DR   9055-58-7, 9059-54-5
MF   Unspecified
CI   MAN
LC   STN Files:   AGRICOLA, BIOBUSINESS, BIOSIS, CA, CAPLUS, TOXCENTER,
       USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
             170 REFERENCES IN FILE CA (1907 TO DATE)
               1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
             170 REFERENCES IN FILE CAPLUS (1907 TO DATE)
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=> d full his

     (FILE 'HOME' ENTERED AT 08:33:46 ON 29 JAN 2004)

     FILE 'REGISTRY' ENTERED AT 08:34:26 ON 29 JAN 2004
L1             2 SEA ABB=ON  PLU=ON  HOMOSERINE TRANSSUCCINYLASE/CN
                 D 1-2

     FILE 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT,
     CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DISSABS, DGENE,
     DRUGB, DRUGMONOG2, IMSDRUGNEWS, DRUGU, IMSRESEARCH, ..' ENTERED AT
     08:35:15 ON 29 JAN 2004

     FILE 'REGISTRY' ENTERED AT 08:35:21 ON 29 JAN 2004
                 SET SMARTSELECT ON
L2               SEL PLU=ON  L1 1- CHEM :      17 TERMS
                 SET SMARTSELECT OFF

     FILE 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT,
     CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DISSABS, DGENE,
     DRUGB, DRUGMONOG2, IMSDRUGNEWS, DRUGU, IMSRESEARCH, ..' ENTERED AT
     08:35:23 ON 29 JAN 2004
L3          2923 SEA ABB=ON  PLU=ON  L2
     FILE 'REGISTRY' ENTERED AT 08:40:43 ON 29 JAN 2004
L4             2 SEA ABB=ON  PLU=ON  METHIONINE/CN
                 D 1-2

     FILE 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT,
     CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DISSABS, DGENE,
     DRUGB, DRUGMONOG2, IMSDRUGNEWS, DRUGU, IMSRESEARCH, ..' ENTERED AT
     08:45:25 ON 29 JAN 2004
L5          1342 SEA ABB=ON  PLU=ON  L3 (L) (METHIONINE)
L6           152 SEA ABB=ON  PLU=ON  L5 (L) REPRESS?
L7           151 SEA ABB=ON  PLU=ON  L6 (L) (MAK? OR PREP? OR SYNTH? OR
                 FERMENT? OR PROD? OR PREP/RL)
L8            33 SEA ABB=ON  PLU=ON  L7 AND PY<1999
L9            20 DUP REM L8 (13 DUPLICATES REMOVED)
L10           20 FOCUS L9 1-
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=> d ibib ab 1-10

L10 ANSWER 1 OF 20 USPATFULL on STN
ACCESSION NUMBER: 2003:197132 USPATFULL
TITLE: S-adenosyl methionine regulation of metabolic pathways and its use in diagnosis and therapy
INVENTOR(S): Schwartz, Dennis E., Redmond, WA, United States
Vermeulen, Nicolaas M. J., Woodinville, WA, United States
O'Day, Christine L., Mountlake Terrace, WA, United States
PATENT ASSIGNEE(S): MediQuest Therapeutics, Inc., Seattle, WA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6596701	B1	20030722	
	WO 9633703		19961031	<--
APPLICATION INFO.:	US 1998-930128		19980316	(8)
	WO 1996-US5799		19960425	

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1995-476447, filed on 7 Jun 1995, now abandoned Continuation-in-part of Ser. No. US 1995-428963, filed on 25 Apr 1995
DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Swartz, Rodney P
LEGAL REPRESENTATIVE: Morrison & Foerster LLP
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 15 Drawing Figure(s); 15 Drawing Page(s)
LINE COUNT: 4938
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A new paradigm of disease centers around the metabolic pathways of S-adenosyl-L-methionine (SAM), the intermediates of these pathways and other metabolic pathways influenced by the SAM pathways. Methods are provided to analyze and modulate SAM pathways associated with a disease or condition. Such methods permit identification and utilization of diagnostic and therapeutic protocols and agents for such disease states and conditions.

L10 ANSWER 2 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1975:82740 CAPLUS
DOCUMENT NUMBER: 82:82740
TITLE: Fermentation production of L-methionine and regulation of L-methionine biosynthesis in Corynebacterium glutamicum. II. Regulationof L-methionine synthesis and the properties of cystathionine .gamma.-synthase and .beta.-cystathionase in Corynebacterium glutamicum
AUTHOR(S): Kase, Hiroshi; Nakayama, Kiyoshi
CORPORATE SOURCE: Tokyo Res. Lab., Kyowa Hakko Kogyo Co., Ltd., Machida, Japan
SOURCE: Agricultural and Biological Chemistry (**1974**), 38(11), 2235-42
CODEN: ABCHA6; ISSN: 0002-1369
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Cystathionine .gamma.-synthase** and .beta.-cystathionase activities were present in cell-free exts. of C. glutamicum. The reactions catalyzed by **cystathionine .gamma.-synthase** and .beta.-cystathionase were characterized with respect to Michaelis const., pH optimum, incubation time, and optimal enzyme concn. **Cystathionine .gamma.-synthase** was sensitive to inhibition by S-adenosylmethionine. Formation of **cystathionine .gamma.-synthase** and .beta.-cystathionase was **repressed** by the addn. of **methionine** to the growth medium although this **repression** appeared to be noncoordinate. The regulation of **methionine** biosynthesis in C. glutamicum was discussed.

L10 ANSWER 3 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1975:135411 CAPLUS
DOCUMENT NUMBER: 82:135411
TITLE: Fermentation production of L-methionine and regulation of L-methionine biosynthesis in Corynebacterium glutamicum. III. L-Methionine production by methionine analog-resistant mutants of Corynebacterium glutamicum
AUTHOR(S): Kase, Hiroshi; Nakayama, Kiyoshi
CORPORATE SOURCE: Tokyo Res. Lab., Kyowa Hakko Kogyo Co., Ltd., Machida, Japan
SOURCE: Agricultural and Biological Chemistry (**1975**), 39(1), 153-60
CODEN: ABCHA6; ISSN: 0002-1369
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Ethionine-resistant C. glutamicum accumulated L-**methionine** in culture media. Increase of L-**methionine prodn.** was accompanied by increased levels and reduced **repressibility** of **methionine**-forming enzymes. In addn., homoserine-O-transacetylase and **cystathionine .gamma.-synthase** which were strongly **repressed** by L-**methionine** in the parent strain were stimulated by exogenous L-**methionine** in the mutant. Implications of these results were discussed in relation to the **productivity** of L-**methionine** and the regulation of L-**methionine** biosynthesis.

L10 ANSWER 4 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1968:450027 CAPLUS
DOCUMENT NUMBER: 69:50027
TITLE: The inhibitory action of .alpha.-methylmethionine on Escherichia coli
AUTHOR(S): Rowbury, R. J.
CORPORATE SOURCE: Univ. Coll., London, UK
SOURCE: Journal of General Microbiology (**1968**), 52(2), 223-30
CODEN: JGMIAN; ISSN: 0022-1287
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Growth of E. coli was completely inhibited by 3.mu.M .alpha.-methylmethionine, whereas 0.1-1.0mM was required for full inhibition by the analogs, ethionine or norleucine. The effect of 20.mu.M .alpha.-methylmethionine was completely abolished by equimolar amts. of **methionine** or cystathionine, but greater amts. of DL-homocysteine were needed to restore normal growth. .alpha.-Methylmethionine did not **repress** the **synthesis** of the **methionine**-forming enzymes but mimicked **methionine** as a feedback inhibitor of **homoserine O-transsuccinylase**, acting on the enzyme at even lower concns. than did **methionine** itself and suggesting that such inhibition of enzyme activity was the basis of the effect of .alpha.-methylmethionine on bacterial growth. **Homoserine O-transsuccinylase** activity was also inhibited by 0.1mM D-**methionine**, 0.1mM DL-homocysteine, and 0.1mM N-acetylmethionine. This inhibition probably occurred after conversion to L-**methionine**. .alpha.-Methylmethionine markedly inhibited the formation of infective phage after irradn. of E. coli, whereas added **methionine** annulled this effect, allowing phage development to occur, and suggesting that .alpha.-methylmethionine did not replace **methionine** in protein. Protein **synthesis** was inhibited by .alpha.-methylmethionine only when the process was dependent on **methionine** formation. 16 references.

L10 ANSWER 5 OF 20 USPATFULL on STN
ACCESSION NUMBER: 90:85556 USPATFULL
TITLE: Modified microorganisms and method of preparing and using same
INVENTOR(S): Curtiss, III, Roy, St. Louis, MO, United States
PATENT ASSIGNEE(S): Research Corporation, New York, NY, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 4968619		19901106	<--
APPLICATION INFO.:	US 1983-513237		19831017	(6)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1979-90640, filed on 2 Nov 1979, now abandoned which is a division of Ser. No. US 1976-727365, filed on 27 Sep 1976, now patented, Pat. No. US 4190495
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Warren, Charles F.
ASSISTANT EXAMINER: Fox, David T.
LEGAL REPRESENTATIVE: Scully, Scott, Murphy & Presser
NUMBER OF CLAIMS: 20
EXEMPLARY CLAIM: 1
LINE COUNT: 3323
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Microorganisms have been developed which may be characterized as possessing substantially all of the following qualities or capabilities:

(a) capable of having foreign genetic information introduced thereinto and recovered therefrom along with its expression with production of useful gene products;

(b) the microorganism being dependent for growth and survival upon defined conditions;

(c) the microorganism being incapable of establishment or growth or colonization and/or survival under conditions or in ecological niches that are considered to be natural and/or undesirable for said microorganism;

(d) the microorganism being capable of causing genetic information incorporated therein to undergo degradation under conditions or ecological niches that are considered to be natural and/or undesirable for said microorganism;

(e) the microorganism being capable of permitting cloning vectors incorporated therein to be dependent for their replication, maintenance and/or function on said microorganism;

(f) the microorganism being substantially incapable of transmitting cloning vectors or recombinant DNA molecules incorporated therein to other organisms under conditions or ecological niches that are considered to be natural and/or undesirable for said microorganism;

(g) the microorganism being capable of being monitored by suitable means and/or techniques without substantial alteration of said microorganism; and

(h) the microorganism being susceptible of substantially minimal contamination with other organisms when recombinant DNA molecules are incorporated therein and being substantially incapable of contaminating other organisms when incorporated therein or consumed thereby when recombinant DNA molecules are incorporated in said microorganism.

L10 ANSWER 6 OF 20 USPATFULL on STN
ACCESSION NUMBER: 80:10222 USPATFULL
TITLE: Modified microorganisms and method of preparing and using same
INVENTOR(S): Curtiss, III, Roy, Birmingham, AL, United States
PATENT ASSIGNEE(S): Research Corporation, New York, NY, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 4190495		19800226	<--
APPLICATION INFO.:	US 1976-727365		19760927	(5)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Tanenholtz, Alvin E.
LEGAL REPRESENTATIVE: Cooper, Dunham, Clark, Griffin & Moran
NUMBER OF CLAIMS: 11
EXEMPLARY CLAIM: 1
LINE COUNT: 3426
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Microorganisms have been developed which may be characterized as possessing substantially all of the following qualities or capabilities:

(a) capable of having foreign genetic information introduced thereinto and recovered therefrom along with its expression with production of useful gene products;

(b) the microorganism being dependent for growth and survival upon defined conditions;

(c) the microorganism being incapable of establishment or growth or colonization and/or survival under conditions or in ecological niches that are considered to be natural and/or undesirable for said microorganism;

(d) the microorganism being capable of causing genetic information incorporated therein to undergo degradation under conditions or ecological niches that are considered to be natural and/or undesirable for said microorganism;

(e) the microorganism being capable of permitting cloning vectors incorporated therein to be dependent for their replication, maintenance and/or function on said microorganism;

(f) the microorganism being substantially incapable of transmitting cloning vectors or recombinant DNA molecules incorporated therein to other organisms under conditions or ecological niches that are considered to be natural and/or undesirable for said microorganism;

(g) the microorganism being capable of being monitored by suitable means and/or techniques without substantial alteration of said microorganism; and

(h) the microorganism being susceptible of substantially minimal contamination with other organisms when recombinant DNA molecules are incorporated therein and being substantially incapable of contaminating other organisms when incorporated therein or consumed thereby when recombinant DNA molecules are incorporated in said microorganism.

Examples of such microorganisms are Escherichia coli K-12 .chi.1776, Escherichia coli K-12 .chi.1972, Escherichia coli K-12 .chi.1976 and Escherichia coli K-12 .chi.2076. Additionally, techniques have been developed and employed for imparting special properties, e.g. genetic properties, to microorganisms which render the resulting microorganisms unique. Also, techniques have been developed for the handling of plasmid and/or bacteriophage cloning DNA vectors for eventual insertion into microorganisms for testing therein, such as the above-mentioned microorganisms, and techniques have been developed for the transformation of microorganisms, such as the above-identified microorganisms, for the introduction of recombinant DNA molecules thereinto. Also, techniques have been developed in connection with the development or production of the above-identified microorganisms which impart special genetically-linked properties thereto, which techniques are applicable to a large number and diversity of microorganisms, including not only bacteria but also yeast and other cellular material.

L10 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1967:53558 CAPLUS
DOCUMENT NUMBER: 66:53558
TITLE: Trans-sulfuration in mammals. The methionine-sparing effect of cystine

AUTHOR(S): Finkelstein, James D.; Mudd, S. Harvey
CORPORATE SOURCE: Veterans Admin. Hosp., Washington, DC, USA
SOURCE: Journal of Biological Chemistry (**1967**), 242(5), 874-80
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Hepatic levels of **cystathionine synthase** and **methionine**-activating enzyme are significantly lower in rats fed a diet low in **methionine** and supplemented with cystine than in rats growing at the same rate while maintained on a diet adequate in **methionine**, with or without cysteine supplementation. Cystathionase levels are also decreased, but to a smaller extent. Betaine-homocysteine methyltransferase is not affected. The enzymic activities which are lowered are restored toward normal by injections of L-**methionine** or L-homocysteine. **Methionine**-activating enzyme and **cystathionine synthase** are inhibited in vitro by L-cystine. However, the decreased enzyme levels in the livers of rats fed the lowmethionine, cystine-supplemented diet cannot be attributed to either a dissociable inhibitor or cystine binding by the enzyme proteins. It seems likely that the cystine effect represents **repression** of enzyme **synthesis**. The physiol. meaning of these changes in enzymic activity is briefly discussed. The changes are such that they may well explain the known **methionine**-sparing effect of cystine. A possible application of these findings to the treatment of patients with homocystinuria due to **cystathionine synthase** deficiency is mentioned. 43 references.

L10 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1972:522548 CAPLUS
DOCUMENT NUMBER: 77:122548
TITLE: Regulation of homocysteine biosynthesis in Salmonella typhimurium
AUTHOR(S): Savin, Michael A.; Flavin, Martin; Slaughter, Clarence
CORPORATE SOURCE: Lab. Biochem., Natl. Heart Lung Inst., Bethesda, MD, USA
SOURCE: Journal of Bacteriology (**1972**), 111(2), 547-56
CODEN: JOBAAY; ISSN: 0021-9193
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The activity of the 1st enzyme in the homocysteine [6027-13-0] branch of the **methionine** [63-68-3] biosynthetic pathway in S. typhimurium, homoserine O-transsucinylase [**9030-70-0**], was found to be subject to synergistic feedback inhibition by **methionine** plus S-adenosylmethionine. The **synthesis** of the transsuccinylase and of the other 2 enzymes of the pathway, **cystathionine** . **gamma**.-**synthetase** [9014-27-1] and .beta.-cystathionase [9055-05-4], was regulated by noncoordinate **repression**. The enzymes were derepressed in metJ and metK regulatory mutants, suggesting the existence of regulatory elements common to all 3. Expts. with a **methionine**/vitamin B12 auxotroph (metE) grown in a chemostat on **methionine** or vitamin B12 suggested that the 1st enzyme is more sensitive to **repression** by **methionine** derived from exogenous than from endogenous sources. The metB and metC mutants grown on **methionine** in the chemostat did not show hypersensitivity to **repression** by exogenous **methionine**. The evidence suggests a possible role for a functional methyltetrahydrofolate-homocysteine transmethylase in regulating the **synthesis** of the 1st enzyme.

L10 ANSWER 9 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1977:169721 BIOSIS
DOCUMENT NUMBER: PREV197763064585; BA63:64585
TITLE: REPRESSION OF THE TYROSINE LYSINE AND METHIONINE BIOSYNTHETIC PATHWAYS IN A HIST MUTANT OF SALMONELLA-TYPHIMURIUM.
AUTHOR(S): BROWN B A; LAX S R; LIANG L; DABNEY B J; SPREMULLI L L; RAVEL J M

SOURCE: Journal of Bacteriology, (1977) Vol. 129, No. 2, pp. 1168-1170.
CODEN: JOBAAY. ISSN: 0021-9193.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: Unavailable

AB A comparison was made of the **repressibility** of certain enzymes in the tyrosine, **methionine** and lysine biosynthetic pathways in wild-type S. typhimurium and a hisT mutant. Tyrosine **represses** the **synthesis** of the tyrosine-sensitive 3-deoxy-D-arabino-heptulosonic acid 7-phosphate **synthetase** and the tyrosine aminotransferase to the same extent in a hisT mutant as in wild type. There is no detectable alteration in the extent to which **methionine represses O-succinylhomoserine synthetase** or in the extent to which lysine **represses** the lysine-sensitive .beta.-aspartokinase as a result of the hisT mutation.

L10 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1968:36978 CAPLUS
DOCUMENT NUMBER: 68:36978
TITLE: Escherichia coli resistance to ethionine
AUTHOR(S): Coleman, William H.; Martin, William Randolph
CORPORATE SOURCE: Univ. of Chicago, Chicago, IL, USA
SOURCE: Proceedings of the Society for Experimental Biology and Medicine (**1967**), 126(2), 481-7
CODEN: PSEBAA; ISSN: 0037-9727
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Ethionine resistance in E. coli occurs at a high frequency (84%) and requires the const. presence of the analog to maintain resistance. Resistant cells exhibited a lag phase 6-8 hrs. longer than sensitive cell controls when cultured in a glucose salts medium. This extended lag was reduced to that of sensitive cell controls by 10 mM L- or D-ethionine, L- or D-**methionine**, homocysteine, or allo-cystathionine, but not by homoserine, succinic acid, or cysteine. A similar prolonged lag occurred when sensitive cells, previously grown in the presence of **methionine**, homocysteine, or cystathionine, were inoculated in basal glucose salts media. The extended lag in all cases tested was due to the rapid death of a significant portion (60-70%) of the initial inoculum during the first hr. of incubation. Resistant cells were **repressed** for **cystathionine synthetase** to the same degree as sensitive cells grown in media contg. L-**methionine**. The pattern of incorporation of label from 35S-labeled ethionine by sensitive and resistant cells was similar, while the rate and pattern of label uptake from ethyl-1-14C-labeled ethionine was clearly different in sensitive and resistant cells. Ethionine resistance in this strain apparently occurs by an induced ability to convert ethionine to **methionine** via homocysteine, which results in **repression** of **cystathionine synthetase**. The viability loss apparently occurred in inocula **repressed** for de novo **methionine synthesis** due to metabolic imbalances brought about by the rapid growth conditions employed in this study.

=> d ibib ab 11-15

L10 ANSWER 11 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1972:550711 CAPLUS
DOCUMENT NUMBER: 77:150711
TITLE: Methionine metabolism in mammals
AUTHOR(S): Finkelstein, James D.
CORPORATE SOURCE: Veterans Adm. Hosp., Washington, DC, USA
SOURCE: Inherited Disord. Sulphur Metab., Proc. Symp. Soc. Study Inborn Errors Metab., 8th (**1971**), Meeting Date 1970, 1-13. Editor(s): Carson, Nina A. J. Livingstone: Edinburgh, Scot.
CODEN: 25IZAC
DOCUMENT TYPE: Conference
LANGUAGE: English
AB A review with some new data. Several enzymes are involved in the metabolism of **methionine** and its deriv., cystathionine by various tissues of the rat, e.g., **methionine**-activating enzyme (I), **cystathionine synthase** (II), betaine-homocysteine methyltransferase (III), N5-methyltetrahydrofolate-homocysteine methyltransferase (IV), and cystathionase (V). The liver of the growing rat contains higher concns. of I, III, nad IV, required to utilize and regenerate **methionine**, but lower concns. of the enzymes of transsulfuration, i.e., II and V. High-protein feeding increased the specific activities of I, II, III, and V in rat liver, while that of IV fell. On the other hand, high-protein feeding has the opposite effect on pancreatic enzymes. Cystine and **methionine** interact in the regulation of rat liver I and II. Thus, cystine supplements **repress synthesis** only in **methionine**-depleted animals. **Methionine** supplements induce hepatic III, but equimolar amts. of homocysteine or betaine are without effect. 33 refs.

L10 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1973:474157 CAPLUS
DOCUMENT NUMBER: 79:74157
TITLE: Ability of methionine, thiamine, or pantothenate to reverse the toxicity of homologous artificial .alpha.-amino acids, including norleucine, for Escherichia coli. Probable role of methionine in the biosynthesis of the two vitamins
AUTHOR(S): Planet, G.; Abshire, C. J.
CORPORATE SOURCE: Fac. Med., Univ. Laval, Quebec, QC, Can.
SOURCE: Canadian Journal of Biochemistry (**1973**), 51(5), 673-85
CODEN: CJBIAE; ISSN: 0008-4018
DOCUMENT TYPE: Journal
LANGUAGE: French
AB Growth inhibition of E. coli by **synthetic** .alpha.-amino acids was competitively reversed by L-methionaine [63-68-3] and noncompetitively reversed by pantothenate [79-83-4] and thiamine [59-43-8]. These compds. apparently behave as analogs of **methionine**. The mechanism of the toxicity consists in **repression** of the enzymes involved in **methionine** biosynthesis and in inhibition of the first enzyme of this pathway, **homoserine O-transsuccinylase**. This leads to an intracellular deficiency in **methionine** which provokes lack of pantothenate and thiamine. **Methionine** is thus necessary for the biosynthesis of thiamine and pantothenate.

L10 ANSWER 13 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1986:151771 BIOSIS
DOCUMENT NUMBER: PREV198681062187; BA81:62187
TITLE: REGULATION OF METHIONINE SYNTHESIS IN ESCHERICHIA-COLI EFFECT MET-J GENE PRODUCT AND S ADENOSYLMETHIONINE ON THE IN-VITRO EXPRESSION OF THE MET-B MET-L AND MET-J GENES.
AUTHOR(S): SHOEMAN R [Reprint author]; COLEMAN T; REDFIELD B; GREENE R C; SMITH A A; SAINT-GIRONS I; BROT N; WEISSBACH H
CORPORATE SOURCE: ROCHE INST MOLECULAR BIOLOGY, ROCHE RES CENTER, NUTLEY, NJ 07110, USA
SOURCE: Biochemical and Biophysical Research Communications, (1985)

Vol. 133, No. 2, pp. 731-739.
CODEN: BBRCA9. ISSN: 0006-291X.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 25 Apr 1986
Last Updated on STN: 25 Apr 1986

AB The regulation of the expression of three Escherichia coli met genes, metB, which codes for **cystathionine** .**gamma**.-**synthetase** (EC 4.2.99.9), metL, which codes for aspartokinase II-homoserine dehydrogenase II (EC 2.7.2.4-EC 1.1.1.3) andmetJ, which codes for the **methionine** regulon aporepressor, has been studied using highly purified DNA-directed in vitro protein **synthesis** systems. In a system where the entire gene **product** is **synthesized**, the expression of the metB and metL genes is specifically inhibited by MetJ protein (**repressor** protein) and S-adenosylmethionine (AdoMet). In a simplified system that measures the formation of the first dipeptide of the gene **product** (fMet-Ala for the metJ gene), MetJ protein and AdoMet partially **repress** (.apprx. 40-60%) metJ gene expression. Thus, the metJ gene can be partially autoregulated by its gene **product**.

L10 ANSWER 14 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1983:186504 BIOSIS
DOCUMENT NUMBER: PREV198375036504; BA75:36504
TITLE: METHIONINE BIOSYNTHESIS IN BREVIBACTERIUM-FLAVUM PROPERTIES AND ESSENTIAL ROLE OF O ACETYL HOMO SERINE SULFHYDRYLASE.
AUTHOR(S): OZAKI H [Reprint author]; SHIIO I
CORPORATE SOURCE: CENTRAL RES LAB, AJINOMOTO CO, INC, KAWASAKI-KU, KAWASAKI, KANAGAWA 210
SOURCE: Journal of Biochemistry (Tokyo), (1982) Vol. 91, No. 4, pp. 1163-1172.
CODEN: JOBIAO. ISSN: 0021-924X.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH

AB Out of 27 strains of **methionine** auxotrophs of B. flavum, 14 strains did not grow on homoserine but grew on O-acetylhomoserine, and all lacked homoserine O-acetyltransferase (EC 2.3.1.31) alone. Another 3 strains did not grow on O-acetylhomoserine but grew on homocysteine, and the 2 strains tested lacked O-acetylhomoserine sulfhydrylase (AHS) alone, without any changes in the activities of **cystathionine** .**gamma**.-**synthase** (EC 4.2.99.9) and .beta.-cystathionase (EC 4.4.1.8). Prototrophic revertants of the AHS-lacking mutants showed concomitant reversion of AHS activity. None of the **methionine** auxotrophs grew on cystathionine. The **methionine** biosynthetic pathway of this bacterium apparently involves formation of O-acetylhomoserine from homoserine by the action of homoserine O-acetyltransferase, and direct formation of homocysteine from O-acetylhomoserine by the AHS reaction. AHS **synthesis** was strongly **repressed** by **methionine**. AHS was purified to 70% purity. The purifed **preparation** was activated by pyridoxal phosphate after treatment with hydroxylamine. The enzyme showed a MW of 360,000, an optimum pH of 8.7 for activity, and specifically reacted with O-acetyl-L-homoserine and showed with O-acetyl-L-serine 1/100 as much activity as that with O-acetylhomoserine, but did not show activity with O-succinyl-L-homoserine, homoserine or serine. The Km values for O-acetylhomoserine and H2S were 2.0 mM and 0.08 mM, respectively. The enzyme was inhibited 50, 23, and 29% by 10 mM L-**methionine**, L-homoserine and O-acetyl-L-serine, respectively, but it was not inhibited by cystathionine or S-adenosyl-L-**methionine**.

L10 ANSWER 15 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1982:178010 BIOSIS
DOCUMENT NUMBER: PREV198273037994; BA73:37994
TITLE: ADAPTATION OF HEPATIC ENZYME ACTIVITIES TO METHIONINE EXCESS.
AUTHOR(S): FAU D [Reprint author]; BOIS-JOYEUX B; CHANEZ M; DELHOMME B; PERET J

CORPORATE SOURCE: CENTRE DE RECHERCHES SUR LA NUTRITION DU CNRS, 92190 MEUDON BELLEVUE, FRANCE
SOURCE: Reproduction Nutrition Developpement, (1981) Vol. 21, No. 4, pp. 519-530.
CODEN: RNDED4. ISSN: 0181-1916.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
AB Two groups of adult male rats, 8 wk old, were fed a 10% protein (casein) diet with or without 2% **methionine**. Eight rats in each group were killed on experimental days 1, 2, 4, 8 and 21. The profiles of plasma nonesterified fatty acids (NEFA) and the profile of the hepatic activities of pyruvate kinase (PK), phosphoenolpyruvate carboxykinase (PEPCK), glucose-6-phosphate dehydrogenase (G6PDH), malic enzyme (ME), acetyl-CoA-carboxylase (Ac, CoA carbox), alanine aminotransferase (AAT), 3-phosphoglycerate dehydrogenase (3PGDH), serine dehydratase (Ser DH), ATP-**methionine** adenosyltransferase (MAd T), **cystathionine synthase** (Cysta S) and cystathionase (Cysta t) were studied. Animal food intake and body weight dropped on the 1st 2 days of **methionine** excess; from day 8, they reached a new equilibrium which was much lower than that of the control animals. Hepatic enzyme adaptation could be the result of 2 mechanisms: a short-term mainly catabolic, process on the 1st 4 days of excess during which phosphoenolpyruvate carboxykinase activity and the plasma NEFA level were high, while glucose-6-phosphate dehydrogenase and malic enzyme activities were declining or a later phenomenon, occurring on experimental day 8 and during which the activity of pyruvate kinase decreased slightly and that of malic enzyme and of 3-phosphoglycerate dehydrogenase declined sharply, while alanine aminotransferase activity was enhanced. The transsulfuration pathway specifically responded to **methionine** excess: ATP-**methionine** adenosyltransferase induction was immediate and depended on the amount of **methionine** ingested while **cystathionine synthase** did not seem to be closely regulated by **methionine** intake and cystathionase was only induced after 4 days. Each induction or **repression** was discussed and related to the overall metabolic effects of the **methionine** excess reported.

=> d ibib ab 16-17

L10 ANSWER 16 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1985:254883 BIOSIS
DOCUMENT NUMBER: PREV198579034879; BA79:34879
TITLE: THREONINE SYNTHASE OF LEMNA-PAUCICOSTATA.
AUTHOR(S): GIOVANELLI J [Reprint author]; VELUTHAMBI K; THOMPSON G A; MUDD S H; DATKO A H
CORPORATE SOURCE: BUILDING 32, ROOM 101, NATIONAL INST MENTAL HEALTH, BETHESDA, MD 20205, USA
SOURCE: Plant Physiology (Rockville), (1984) Vol. 76, No. 2, pp. 285-292.
CODEN: PLPHAY. ISSN: 0032-0889.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
AB Threonine **synthase** (TS) was purified .apprx. 40-fold from L. paucicostata, and some of its properties determined by use of a sensitive and specific assay. During the course of its purification, TS was separated from **cystathionine .gamma.-synthase**, establishing the separate identity of these enzymes. Compared to cystathione .gamma.-**synthase**, TS is relatively insensitive to irreversible inhibition by propargylglycine (both in vitro and in vivo) and to gabaculine, vinylglycine, or cysteine in vitro. TS is highly specific for O-phosho-L-homoserine (OPH) and water (hydroxyl ion). Nucleophilic attack by hydroxyl ion is restricted to C-3 of OPH and proceeds stereospecifically to form threonine rather than allo-threonine. The Km for OPH, determined at saturating S-adenosylmethionine (AdoMet), is 2.2-6.9 .mu.M, 2 orders of magnitude less than values reported for TS from other plants tissues. AdoMet markedly stimulates the enzyme in a reversible and cooperative manner, consistent with its proposed role in regulation of **methionine** biosynthesis. Cysteine (1 mM) caused a slight (26%) reversible inhibition of the enzyme. Activities of TS isolated from Lemna were inversely related to the **methionine** nutrition of the plants. Down-regulation of TS by **methionine** may help to limit the overproduction of threonine that could result from allosteric stimulation of the enzyme by AdoMet. No evidence was obtained for feedback inhibition, **repression** or covalent modification of TS by threonine and/or isoleucine.

L10 ANSWER 17 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1986:262674 BIOSIS
DOCUMENT NUMBER: PREV198682017423; BA82:17423
TITLE: EFFECTS OF EXOGENOUS AMINO-ACIDS ON GROWTH AND ACTIVITY OF FOUR ASPARTATE PATHWAY ENZYMES IN BARLEY HORDEUM-VULGARE CULTIVAR BOMI.
AUTHOR(S): ROGNES S E [Reprint author]; WALLSGROVE R M; KUEH J S H; BRIGHT S W J
CORPORATE SOURCE: BOT DIV, DEP BIOL, UNIV OSLO, PO BOX 1045, BLINDERN, 0316 OSLO 3, NORW
SOURCE: Plant Science (Shannon), (1986) Vol. 43, No. 1, pp. 45-50.
CODEN: PLSCE4. ISSN: 0168-9452.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 21 Jun 1986
Last Updated on STN: 21 Jun 1986
AB Excised barley embryos were grown in the presence of 1 mM lysine, threonine, **methionine** and isoleucine, alone and in combinations. Growth was similar in all treatments except lysine plus threonine, where growth was severely inhibited. Activities of four regulatory biosynthetic enzymes were measured and expressed on a protein or fresh weight basis to assess possible **repression**/derepression under these conditions. Aspartate kinase (EC 2.7.2.4) (AK) activity and sensitivity to feedback regulators did not vary greatly between treatments. The activity and feedback sensitivity of homoserine dehydrogenase (EC 1.1.1.3) (HSDH) also showed little variation. **Cystathionine synthase** (EC 4.2.99.x) (CS) activity was markedly reduced in plants grown in the presence of **methionine**, and increased nearly 4-fold in the

presence of lysine plus threonine, a condition in which **methionine** is limiting. Activity increased to a lesser extent in plants grown in the presence of threonine alone. Threonine **synthase** (EC 4.2.99.2) (TS) activity in the seedlings was reduced by up to one half in the presence of **methionine**, and to a smaller degree in the presence of isoleucine. None of the treatments led to increased activity of this enzyme.

=> d ti 18-20

L10 ANSWER 18 OF 20 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Deciphering the biology of Mycobacterium tuberculosis from the complete genome sequence
TITLE (TI): Re-annotation of the genome sequence of Mycobacterium tuberculosis H37Rv
TITLE (TI): Direct Submission

L10 ANSWER 19 OF 20 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): A set of ordered cosmids and a detailed genetic and physical map for the 8 Mb Streptomyces coelicolor A3(2) chromosome
TITLE (TI): Direct Submission

L10 ANSWER 20 OF 20 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The complete genome sequence of the gram-positive bacterium Bacillus subtilis
TITLE (TI): Direct Submission

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=> d his

     (FILE 'HOME' ENTERED AT 16:40:05 ON 28 JAN 2004)

     FILE 'REGISTRY' ENTERED AT 16:41:16 ON 28 JAN 2004
L1             2 S HOMOSERINE TRANSSUCCINYLASE/CN

     FILE 'HCAPLUS' ENTERED AT 16:41:49 ON 28 JAN 2004

     FILE 'REGISTRY' ENTERED AT 16:41:52 ON 28 JAN 2004
                SET SMARTSELECT ON
L2           SEL L1 1- CHEM :       17 TERMS
                SET SMARTSELECT OFF

     FILE 'HCAPLUS' ENTERED AT 16:41:52 ON 28 JAN 2004
L3           594 S L2
L4           220 S L3 (L) (METHIONINE)
L5            23 S L4 (L) REPRESS?
L6            15 S L5 AND PD<19981117
L7             1 S L5 (L) PREP/RL
L8            15 FOCUS L6 1-
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=> d ibib ab 1-15

L8 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1975:82740 HCAPLUS
DOCUMENT NUMBER: 82:82740
TITLE: Fermentation production of L-methionine and regulation of L-methionine biosynthesis in Corynebacterium glutamicum. II. Regulationof L-methionine synthesis and the properties of cystathionine .gamma.-synthase and .beta.-cystathionase in Corynebacterium glutamicum
AUTHOR(S): Kase, Hiroshi; Nakayama, Kiyoshi
CORPORATE SOURCE: Tokyo Res. Lab., Kyowa Hakko Kogyo Co., Ltd., Machida, Japan
SOURCE: Agricultural and Biological Chemistry (**1974**), 38(11), 2235-42
CODEN: ABCHA6; ISSN: 0002-1369
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Cystathionine .gamma.-synthase** and .beta.-cystathionase activities were present in cell-free exts. of C. glutamicum. The reactions catalyzed by **cystathionine .gamma.-synthase** and .beta.-cystathionase were characterized with respect to Michaelis const., pH optimum, incubation time, and optimal enzyme concn. **Cystathionine .gamma.-synthase** was sensitive to inhibition by S-adenosylmethionine. Formation of **cystathionine .gamma.-synthase** and .beta.-cystathionase was **repressed** by the addn. of **methionine** to the growth medium although this **repression** appeared to be noncoordinate. The regulation of **methionine** biosynthesis in C. glutamicum was discussed.

L8 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1977:117491 HCAPLUS
DOCUMENT NUMBER: 86:117491
TITLE: Repression of the tyrosine, lysine, and methionine biosynthetic pathways in a hisT mutant of Salmonella typhimurium
AUTHOR(S): Brown, Beverly A.; Lax, Sandra R.; Liang, Lily; Dabney, Betty J.; Spremulli, Linda L.; Ravel, Joanne M.
CORPORATE SOURCE: Clayton Found. Biochem. Inst., Univ. Texas, Austin, TX, USA
SOURCE: Journal of Bacteriology (**1977**), 129(2), 1168-70
CODEN: JOBAAY; ISSN: 0021-9193
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A comparison was made of the **repressibility** of certain enzymes in the tyrosine, **methionine**, and lysine biosynthetic pathways in wild-type S. typhimurium and a hisT mutant. The results show that (1) tyrosine **represses** the synthesis of the tyrosine-sensitive 3-deoxy-D-arabino-heptulosonic acid 7-phosphate synthetase and the tyrosine aminotransferase to the same extent in a hisT mutant as in wild type and (2) there is no detectable alteration in the extent to which **methionine represses O-succinylhomoserine synthetase** or in the extent to which lysine **represses** the lysine-sensitive .beta.-aspartokinase as a result of the hisT mutation.

L8 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1975:135411 HCAPLUS
DOCUMENT NUMBER: 82:135411
TITLE: Fermentation production of L-methionine and regulation of L-methionine biosynthesis in Corynebacterium glutamicum. III. L-Methionine production by methionine analog-resistant mutants of Corynebacterium glutamicum
AUTHOR(S): Kase, Hiroshi; Nakayama, Kiyoshi
CORPORATE SOURCE: Tokyo Res. Lab., Kyowa Hakko Kogyo Co., Ltd., Machida,

Japan
SOURCE: Agricultural and Biological Chemistry (**1975**), 39(1), 153-60
CODEN: ABCHA6; ISSN: 0002-1369
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Ethionine-resistant C. glutamicum accumulated L-**methionine** in culture media. Increase of L-**methionine** prodn. was accompanied by increased levels and reduced **repressibility** of **methionine**-forming enzymes. In addn., homoserine-O-transacetylase and **cystathionine .gamma.-synthase** which were strongly **repressed** by L-**methionine** in the parent strain were stimulated by exogenous L-**methionine** in the mutant. Implications of these results were discussed in relation to the productivity of L-**methionine** and the regulation of L-**methionine** biosynthesis.

L8 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1986:63094 HCAPLUS
DOCUMENT NUMBER: 104:63094
TITLE: Regulation of methionine synthesis in Escherichia coli: effect of metJ gene product and S-adenosylmethionine on the in vitro expression of the metB, metL and metJ genes
AUTHOR(S): Shoeman, Robert; Coleman, Timothy; Redfield, Betty; Greene, Ronald C.; Smith, Albert A.; Saint-Girons, Isabelle; Brot, Nathan; Weissbach, Herbert
CORPORATE SOURCE: Roche Res. Cent., Roche Inst. Mol. Biol., Nutley, NJ, 07110, USA
SOURCE: Biochemical and Biophysical Research Communications (**1985**), 133(2), 731-9
CODEN: BBRCA9; ISSN: 0006-291X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The regulation of the expression of 3 E. coli met genes metB, which encodes for **cystathionine .gamma.-synthetase** [**9030-70-0**]; metL, which codes for aspartokinase II [9012-50-4]-homoserine dehydrogenase II [9028-13-1]; and metJ, which codes for the **methionine** regulon aporepressor) was studied by using a highly purified DNA-directed in vitro protein synthesis system. In a system where the entire gene product is synthesized, the expression of the metB and metL genes is specifically inhibited by MetJ protein and S-adenosylmethionine (AdoMet) [29908-03-0]. In a simplified system that measures the formation of the 1st dipeptide of the gene product (fMet-Ala for the metJ gene), MetJ protein and AdoMet partially **repress** (.apprx.40-60%) metJ gene expression. Thus, the metJ gene can be partially autoregulated by its gene product.

L8 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1968:450027 HCAPLUS
DOCUMENT NUMBER: 69:50027
TITLE: The inhibitory action of .alpha.-methylmethionine on Escherichia coli
AUTHOR(S): Rowbury, R. J.
CORPORATE SOURCE: Univ. Coll., London, UK
SOURCE: Journal of General Microbiology (**1968**), 52(2), 223-30
CODEN: JGMIAN; ISSN: 0022-1287
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Growth of E. coli was completely inhibited by 3.mu.M .alpha.-methylmethionine, whereas 0.1-1.0mM was required for full inhibition by the analogs, ethionine or norleucine. The effect of 20.mu.M .alpha.-methylmethionine was completely abolished by equimolar amts. of **methionine** or cystathionine, but greater amts. of DL-homocysteine were needed to restore normal growth. .alpha.-Methylmethionine did not **repress** the synthesis of the **methionine**-forming enzymes but mimicked **methionine** as a feedback inhibitor of **homoserine O-transsuccinylase**, acting on the

enzyme at even lower concns. than did **methionine** itself and suggesting that such inhibition of enzyme activity was the basis of the effect of .alpha.-methylmethionine on bacterial growth. **Homoserine O-transsuccinylase** activity was also inhibited by 0.1mM D-**methionine**, 0.1mM DL-homocysteine, and 0.1mM N-acetylmethionine. This inhibition probably occurred after conversion to L-**methionine**. .alpha.-Methylmethionine markedly inhibited the formation of infective phage after irradn. of E. coli, whereas added **methionine** annulled this effect, allowing phage development to occur, and suggesting that .alpha.-methylmethionine did not replace **methionine** in protein. Protein synthesis was inhibited by .alpha.-methylmethionine only when the process was dependent on **methionine** formation. 16 references.

L8 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1967:53558 HCAPLUS
DOCUMENT NUMBER: 66:53558
TITLE: Trans-sulfuration in mammals. The methionine-sparing effect of cystine
AUTHOR(S): Finkelstein, James D.; Mudd, S. Harvey
CORPORATE SOURCE: Veterans Admin. Hosp., Washington, DC, USA
SOURCE: Journal of Biological Chemistry (**1967**), 242(5), 874-80
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Hepatic levels of **cystathionine synthase** and **methionine**-activating enzyme are significantly lower in rats fed a diet low in **methionine** and supplemented with cystine than in rats growing at the same rate while maintained on a diet adequate in **methionine**, with or without cysteine supplementation. Cystathionase levels are also decreased, but to a smaller extent. Betaine-homocysteine methyltransferase is not affected. The enzymic activities which are lowered are restored toward normal by injections of L-**methionine** or L-homocysteine. **Methionine**-activating enzyme and **cystathionine synthase** are inhibited in vitro by L-cystine. However, the decreased enzyme levels in the livers of rats fed the lowmethionine, cystine-supplemented diet cannot be attributed to either a dissociable inhibitor or cystine binding by the enzyme proteins. It seems likely that the cystine effect represents **repression** of enzyme synthesis. The physiol. meaning of these changes in enzymic activity is briefly discussed. The changes are such that they may well explain the known **methionine**-sparing effect of cystine. A possible application of these findings to the treatment of patients with homocystinuria due to **cystathionine synthase** deficiency is mentioned. 43 references.

L8 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1972:522548 HCAPLUS
DOCUMENT NUMBER: 77:122548
TITLE: Regulation of homocysteine biosynthesis in Salmonella typhimurium
AUTHOR(S): Savin, Michael A.; Flavin, Martin; Slaughter, Clarence
CORPORATE SOURCE: Lab. Biochem., Natl. Heart Lung Inst., Bethesda, MD, USA
SOURCE: Journal of Bacteriology (**1972**), 111(2), 547-56
CODEN: JOBAAY; ISSN: 0021-9193
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The activity of the 1st enzyme in the homocysteine [6027-13-0] branch of the **methionine** [63-68-3] biosynthetic pathway in S. typhimurium, homoserine O-transsucinylase [**9030-70-0**], was found to be subject to synergistic feedback inhibition by **methionine** plus S-adenosylmethionine. The synthesis of the transsuccinylase and of the other 2 enzymes of the pathway, **cystathionine .gamma.-synthetase** [9014-27-1] and .beta.-cystathionase [9055-05-4], was regulated by noncoordinate **repression**. The enzymes were derepressed in metJ and metK regulatory mutants, suggesting the existence

of regulatory elements common to all 3. Expts. with a **methionine** /vitamin B12 auxotroph (metE) grown in a chemostat on **methionine** or vitamin B12 suggested that the 1st enzyme is more sensitive to **repression** by **methionine** derived from exogenous than from endogenous sources. The metB and metC mutants grown on **methionine** in the chemostat did not show hypersensitivity to **repression** by exogenous **methionine**. The evidence suggests a possible role for a functional methyltetrahydrofolate-homocysteine transmethylase in regulating the synthesis of the 1st enzyme.

L8 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1968:36978 HCAPLUS
DOCUMENT NUMBER: 68:36978
TITLE: Escherichia coli resistance to ethionine
AUTHOR(S): Coleman, William H.; Martin, William Randolph
CORPORATE SOURCE: Univ. of Chicago, Chicago, IL, USA
SOURCE: Proceedings of the Society for Experimental Biology and Medicine (**1967**), 126(2), 481-7
CODEN: PSEBAA; ISSN: 0037-9727
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Ethionine resistance in E. coli occurs at a high frequency (84%) and requires the const. presence of the analog to maintain resistance. Resistant cells exhibited a lag phase 6-8 hrs. longer than sensitive cell controls when cultured in a glucose salts medium. This extended lag was reduced to that of sensitive cell controls by 10 mM L- or D-ethionine, L- or D-**methionine**, homocysteine, or allo-cystathionine, but not by homoserine, succinic acid, or cysteine. A similar prolonged lag occurred when sensitive cells, previously grown in the presence of **methionine**, homocysteine, or cystathionine, were inoculated in basal glucose salts media. The extended lag in all cases tested was due to the rapid death of a significant portion (60-70%) of the initial inoculum during the first hr. of incubation. Resistant cells were **repressed** for **cystathionine synthetase** to the same degree as sensitive cells grown in media contg. L-**methionine** . The pattern of incorporation of label from 35S-labeled ethionine by sensitive and resistant cells was similar, while the rate and pattern of label uptake from ethyl-1-14C-labeled ethionine was clearly different in sensitive and resistant cells. Ethionine resistance in this strain apparently occurs by an induced ability to convert ethionine to **methionine** via homocysteine, which results in **repression** of **cystathionine synthetase**. The viability loss apparently occurred in inocula **repressed** for de novo **methionine** synthesis due to metabolic imbalances brought about by the rapid growth conditions employed in this study.

L8 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1982:176759 HCAPLUS
DOCUMENT NUMBER: 96:176759
TITLE: Methionine biosynthesis in Brevibacterium flavum: properties and essential role of O-acetylhomoserine sulfhydrylase
AUTHOR(S): Ozaki, Hachiro; Shiio, Isamu
CORPORATE SOURCE: Cent. Res. Lab., Ajinomoto Co., Inc., Kawasaki, 210, Japan
SOURCE: Journal of Biochemistry (Tokyo, Japan) (**1982**), 91(4), 1163-71
CODEN: JOBIAO; ISSN: 0021-924X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Of 27 strains of **methionine** auxotrophs of B. flavum, 14 strains did not grow on homoserine, but grew on O-acetylhomoserine (I); all lacked homoserine O-acetyltransferase (EC 2.3.1.31) (II). Another 3 strains did not grow on I, but grew on homocysteine; the 2 strains tested lacked O-acetylhomoserine sulfhydrylase (III), the activities of **cystathionine .gamma.-synthase** (EC 4.2.99.9) and .beta.-cystathionase (EC 4.4.1.8) being unchanged. Prototrophic revertants of the III-lacking mutants showed concomitant reversion of III activity. None of the **methionine** auxotrophs grew on

cystathionine. Therefore, the **methionine** biosynthetic pathway of this bacterium involves formation of I from homoserine by the action of II, and direct formation of homocysteine from I by the III reaction. III synthesis was strongly **repressed** by **methionine**. III was purified to 70% purity. The purified prepn. was activated by pyridoxal phosphate after treatment with hydroxylamine. III had a mol. wt. of 360,000, an optimum pH of 8.7, and specifically reacted with I; the activity with O-acetyl-L-serine was 1/100 of that with I. III exhibited no activity with O-succinyl-L-homoserine, homoserine, or serine. The Km values of III for I and H2S were 2.0 and 0.08 mM, resp. III was inhibited 50, 23, and 29% by 10 mM L-**methionine**, L-homoserine, and O-acetyl-L-serine, resp., but was not inhibited by cystathionine or S-adenosyl-L-**methionine**.

L8 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1981:478888 HCAPLUS
DOCUMENT NUMBER: 95:78888
TITLE: Adaptation of hepatic enzyme activities to methionine excess
AUTHOR(S): Fau, D.; Bois-Joyeux, Brigitte; Chanez, M.; Delhomme, Brigitte; Peret, J.
CORPORATE SOURCE: Cent. Rech. Nutr., CNRS, Meudon Bellevue, 92190, Fr.
SOURCE: Reproduction, Nutrition, Developpement (1980-1988) (**1981**), 21(4), 519-29
CODEN: RNDED4; ISSN: 0181-1916
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Two groups of adult male rats 8 wk old were fed a 10% protein (casein) diet with or without 2% **methionine** [59-51-8]. On exptl. days 1, 2, 4, 8 and 21, the profiles of plasma nonesterified fatty acids (NEFA) and of hepatic enzyme activities were studied. Animal food intake and body wt. dropped on the 1st 2 days of **methionine** excess; from day 8, they reached a new equil. which was much lower than that of the control animals. The obsd. hepatic enzyme adaptation could be the result of 2 mechanisms: (i) a short-term, mainly catabolic, process on the first 4 days of excess during which phosphoenolpyruvate carboxykinase [9013-08-5] activity and the plasma NEFA level were high, while glucose-6-phosphate dehydrogenase [9001-40-5] and malic enzyme [9028-47-1] activities were declining: (ii) a later phenomenon, occurring on exptl. day 8 and during which the activity of pyruvate kinase [9001-59-6] decreased slightly and that of malic enzyme and of 3-phosphoglycerate dehydrogenase [9075-29-0] declined sharply, while alanine aminotransferase [9000-86-6] activity was enhanced. The transsulfuration pathway specified responded to **methionine** excess: ATP-**methionine** adenosyltransferase [9012-52-6] induction was immediate and depended on the amt. of **methionine** ingested while **cystathionine synthase** [9023-99-8] did not seem to be closely regulated by **methionine** intake and cystathionase [9012-96-8] was only induced after 4 days. Each induction or **repression** has been discussed and related to the overall metabolic effects of the **methionine** excess.

L8 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1965:426075 HCAPLUS
DOCUMENT NUMBER: 63:26075
ORIGINAL REFERENCE NO.: 63:4692a-b
TITLE: Resistance to norleucine and control of methionine synthesis in Escherichia coli
AUTHOR(S): Rowbury, R. J.
CORPORATE SOURCE: Univ. Coll., London
SOURCE: Nature (London, United Kingdom) (**1965**), 206(4987), 962-3
CODEN: NATUAS; ISSN: 0028-0836
DOCUMENT TYPE: Journal
LANGUAGE: English
AB cf. CA 56, 14724h. In a norleucine-resistant strain (P-76-2) of E. coli, the resistance to norleucine was assocd. with failure of **methionine** to **repress** any of the biosynthetic enzymes. The 1st enzyme of the biosynthetic pathway (**homoserine O**

-**transsuccinylase**) was still sensitive to feedback inhibition. This inhibition limited the overproduction of **methionine**, although sufficient excess **methionine** was formed to overcome the inhibitory effect of norleucine.

L8 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1972:550711 HCAPLUS
DOCUMENT NUMBER: 77:150711
TITLE: Methionine metabolism in mammals
AUTHOR(S): Finkelstein, James D.
CORPORATE SOURCE: Veterans Adm. Hosp., Washington, DC, USA
SOURCE: Inherited Disord. Sulphur Metab., Proc. Symp. Soc. Study Inborn Errors Metab., 8th (**1971**), Meeting Date 1970, 1-13. Editor(s): Carson, Nina A. J. Livingstone: Edinburgh, Scot.
CODEN: 25IZAC
DOCUMENT TYPE: Conference
LANGUAGE: English
AB A review with some new data. Several enzymes are involved in the metabolism of **methionine** and its deriv., cystathionine by various tissues of the rat, e.g., **methionine**-activating enzyme (I), **cystathionine synthase** (II), betaine-homocysteine methyltransferase (III), N5-methyltetrahydrofolate-homocysteine methyltransferase (IV), and cystathionase (V). The liver of the growing rat contains higher concns. of I, III, nad IV, required to utilize and regenerate **methionine**, but lower concns. of the enzymes of transsulfuration, i.e., II and V. High-protein feeding increased the specific activities of I, II, III, and V in rat liver, while that of IV fell. On the other hand, high-protein feeding has the opposite effect on pancreatic enzymes. Cystine and **methionine** interact in the regulation of rat liver I and II. Thus, cystine supplements **repress** synthesis only in **methionine**-depleted animals. **Methionine** supplements induce hepatic III, but equimolar amts. of homocysteine or betaine are without effect. 33 refs.

L8 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1985:41936 HCAPLUS
DOCUMENT NUMBER: 102:41936
TITLE: Threonine synthase of Lemna paucicostata Hegelm. 6746
AUTHOR(S): Giovanelli, John; Veluthambi, K.; Thompson, Gregory A.; Mudd, S. Harvey; Datko, Anne H.
CORPORATE SOURCE: Lab. Gen. Comp. Biochem., Natl. Inst. Ment. Health, Bethesda, MD, 20205, USA
SOURCE: Plant Physiology (**1984**), 76(2), 285-92
CODEN: PLPHAY; ISSN: 0032-0889
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Threonine synthase (TS) was purified .apprx.40-fold from L. paucicostata, and some of its properties detd. by use of a sensitive and specific assay. During the course of its purifn., TS was sepd. from **cystathionine .gamma.-synthase**, establishing the sep. identity of these enzymes. Compared to cystathione .gamma.-synthase, TS is relatively insensitive to irreversible inhibition by propargylglycine (both in vitro and in vivo) and to gabaculine, vinylglycine, or cysteine in vitro. TS is highly specific for O-phospho-D-homoserine (OPH) and water (OH-). Nucleophilic attack by OH- is restricted to C-3 of OPH and proceeds stereospecifically to form threonine rather than allo-threonine. The Km for OPH, detd. by satg. S-adenosylmethionine (AdoMet), is 2.2-6.9 .mu.M, 100-fold less than values reported for TS from other plant tissues. AdoMet markedly stimulates the enzyme in a reversible and cooperative manner, consistent with its proposed role in regulation of **methionine** biosynthesis. Cysteine (1 mM) caused a slight (26%) reversible inhibition of the enzyme. Activities of TS isolated from Lemna were inversely related to the **methionine** nutrition of the plants. Down-regulation of TS by **methionine** may help to limit the overprodn. of threonine that could result from allosteric stimulation of the enzyme by AdoMet. No evidence was obtained for feedback inhibition, **repression**, or covalent modification of TS by threonine and/or isoleucine.

L8 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1973:474157 HCAPLUS
DOCUMENT NUMBER: 79:74157
TITLE: Ability of methionine, thiamine, or pantothenate to reverse the toxicity of homologous artificial .alpha.-amino acids, including norleucine, for Escherichia coli. Probable role of methionine in the biosynthesis of the two vitamins
AUTHOR(S): Planet, G.; Abshire, C. J.
CORPORATE SOURCE: Fac. Med., Univ. Laval, Quebec, QC, Can.
SOURCE: Canadian Journal of Biochemistry (**1973**), 51(5), 673-85
CODEN: CJBIAE; ISSN: 0008-4018
DOCUMENT TYPE: Journal
LANGUAGE: French
AB Growth inhibition of E. coli by synthetic .alpha.-amino acids was competitively reversed by L-methionaine [63-68-3] and noncompetitively reversed by pantothenate [79-83-4] and thiamine [59-43-8]. These compds. apparently behave as analogs of **methionine**. The mechanism of the toxicity consists in **repression** of the enzymes involved in **methionine** biosynthesis and in inhibition of the first enzyme of this pathway, **homoserine O-transsuccinylase**. This leads to an intracellular deficiency in **methionine** which provokes lack of pantothenate and thiamine. **Methionine** is thus necessary for the biosynthesis of thiamine and pantothenate.

L8 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1986:165517 HCAPLUS
DOCUMENT NUMBER: 104:165517
TITLE: Effects of exogenous amino acids on growth and activity of four aspartate pathway enzymes in barley
AUTHOR(S): Rognes, Sven E.; Wallsgrove, Roger M.; Kueh, Joseph S. H.; Bright, Simon W. J.
CORPORATE SOURCE: Dep. Biol., Univ. Oslo, Oslo, 0316, Norway
SOURCE: Plant Science (Shannon, Ireland) (**1986**), 43(1), 45-50
CODEN: PLSCE4; ISSN: 0168-9452
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Excised barley embryos were grown in the presence of 1 mM lysine, threonine, **methionine** and isoleucine, alone and in combinations. Growth was similar in all treatments except lysine plus threonine, where growth was severely inhibited. Activities of 4 regulatory biosynthetic enzymes were measured and expressed on a protein or fresh wt. basis to assess possible **repression**/derepression under these conditions. Aspartate kinase (EC 2.7.2.4) activity and sensitivity to feedback regulators did not vary greatly between treatments. The activity and feedback sensitivity of homoserine dehydrogenase (EC 1.1.1.3) also showed little variation. **Cystathionine synthase** (EC 4.2.99.x) was markedly reduced in plants grown in the presence of **methionine** and increased nearly 4-fold in the presence of lysine plus threonine, a condition in which **methionine** is limiting. Activity increased to a lesser extent in plants grown in the presence of threonine alone. Threonine synthase (EC 4.2.99.2) in the seedlings was reduced up to one half in the presence of **methionine**, and to a smaller degree in the presence of isoleucine. None of the treatments led to increased activity of this enzyme.

L1 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1982:100689 CAPLUS
DOCUMENT NUMBER: 96:100689
TITLE: Formation of L-methionine by methanol-utilizing bacteria. Part II. Regulatory properties of L-methionine biosynthesis in obligate methylotroph OM 33: role of homoserine-O-transsuccinylase
AUTHOR(S): Morinaga, Yasushi; Tani, Yoshiki; Yamada, Hideaki
CORPORATE SOURCE: Dep. Agric. Chem., Kyoto Univ., Kyoto, 606, Japan
SOURCE: Agric. Biol. Chem. (1982), 46(1), 57-63
CODEN: ABCHA6; ISSN: 0002-1369
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A cell-free ext. of obligate methylotroph strain OM 33 catalyzed the formation of O-succinyl-L-homoserine from L-homoserine and succinyl-CoA, whereas the corresponding homoserine deriv. from acetyl CoA was scarcely formed. The acylation of L-homoserine, the initial step of L-methionine biosynthesis, was catalyzed by homoserine O-transsuccinylase. In this bacterium, homoserine O-transsuccinylase was subject to strict feedback inhibition by S-adenosyl-L-methionine (SAM). On the other hand, the enzyme of an ethionine-resistant mutant OE 120 derived from strain OM 33, was hardly affected by SAM. Homoserine O-transsucinylase may play an important role in the biosynthesis of L-methionine.

ACCESSION NUMBER: 91237330 MEDLINE
DOCUMENT NUMBER: 91237330 PubMed ID: 2033383
TITLE: Control of methionine biosynthesis in Escherichia coli K12: a closer study with analogue-resistant mutants.
AUTHOR: Chattopadhyay M K; Ghosh A K; Sengupta S
CORPORATE SOURCE: Department of Applied Biochemistry, Indian Institute of Chemical Biology, Calcutta.
SOURCE: JOURNAL OF GENERAL MICROBIOLOGY, (1991 Mar) 137 (Pt 3) 685-91.
Journal code: I87; 0375371. ISSN: 0022-1287.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199106
ENTRY DATE: Entered STN: 19910714
Last Updated on STN: 19970203
Entered Medline: 19910625

L11 ANSWER 72 OF 103 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1983:84243 CAPLUS
DOCUMENT NUMBER: 98:84243
TITLE: Level of polyamines in Escherichia coli carrying the metA gene on a multicopy plasmid
AUTHOR(S): Michaeli, Shulamit; Rozenhak, Sonia; Ron, Eliora Z.
CORPORATE SOURCE: Dep. Microbiol., Tel-Aviv Univ., Tel Aviv-Jaffa, Israel
SOURCE: Adv. Polyamine Res. (1983), 4, 519-20
CODEN: APYRD9; ISSN: 0160-2179
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Strains of E. coli with elevated level of intracellular methionine were obtained by the introduction. of multicopy plasmids contg. the metA gene, which codes for homoserine transsuccinylase [9030-70-0], the 1st enzyme in the methionine [63-68-3] pathway. One of the plasmids obtained which contained the metA gene was pMA-3. Strains carrying this plasmid were overproducers of methionine. In the presence of elevated intracellular methionine concns., there was an increase in spermidine [124-20-9] content that was concomitant with a decrease in the level of putrescine [110-60-1]; this resulted in a significant change in the ratio of spermidine-to-putrescine.

L11 ANSWER 77 OF 103 MEDLINE
DUPLICATE 39
ACCESSION NUMBER: 82035243 MEDLINE
DOCUMENT NUMBER: 82035243 PubMed ID: 6457238
TITLE: Construction and physical mapping of plasmids containing the MetA gene of Escherichia coli K-12.
AUTHOR: Michaeli S; Ron E Z; Cohen G
SOURCE: MOLECULAR AND GENERAL GENETICS, (1981) 182 (2) 349-54.
Journal code: NGP; 0125036. ISSN: 0026-8925.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198112
ENTRY DATE: Entered STN: 19900316
Last Updated on STN: 19900316
Entered Medline: 19811215

AB Plasmids containing the metA gene of E. coli K-12 were constructed in vitro using pBR322 as the cloning vehicle and lambda metA transducing phage as the source of metA DNA. EcoRI digests of pBR322 and lambda metA20 were joined by ligase and plasmids carrying the metA gene were selected after transformation in a metA deletion strain. Recombinant DNA molecules contained one pBR322 fragment and one lambda metA20 fragment of 12.2 kb which was present in either of two possible orientations. Plasmids constructed by BamHI digestion of lambda metA2 contained a single bacterial DNA fragment of 5.8 kb inserted in the tet gene. Insertion of the metA fragment led to loss of resistance to tetracycline in one orientation and partial resistance in the opposite orientation.

L11 ANSWER 92 OF 103 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1973:523515 CAPLUS
DOCUMENT NUMBER: 79:123515
TITLE: Effects of methionine and vitamin B12 on the activities of methionine biosynthetic enzymes in metJ- mutants of Escherichia coli K12
AUTHOR(S): Greene, Ronald C.; Williams, Robert D.; Kung, Hsiang-Fu; Spears, Carlos; Weissbach, Herbert
CORPORATE SOURCE: Basic Sci. Lab., Veterans Adm. Hosp., Durham, N. C., USA
SOURCE: Arch. Biochem. Biophys. (1973), 158(1), 249-56
CODEN: ABBIA4
DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effects of high concns. of methionine (I) (5 mM) and(or) vitamin B12 (II) (10 nM) on the activities of 5 enzymes of the methionine regulon were measured in wild-type E. coli K12, a metJ prototroph and 3 metJ I auxotrophs. Growth on II lowered the activities of the non-B12 methyltransferase while growth on I elevated its activity in all 4 metJ mutants. Apparently the holo B12-methyltransferase functions as a repressor of synthesis of the non-B12 methyltransferase. Growth on I lowered cystathionase activity, and growth on II elevated cystathionase activity in a metJ prototroph and one metJ auxotroph. The metJ metA strain (RG326) has a higher than normal level of cystathionase while the metJ metF strain (RG191) has lower than normal cystathionase activity. These results indicate the existence of a metJ independent system that modulates the activity of cystathionase, possibly in response to changes in concn. of unidentified metabolite(s).

=>

L16 ANSWER 1 OF 2 MEDLINE
DUPLICATE 1
ACCESSION NUMBER: 77118461 MEDLINE
DOCUMENT NUMBER: 77118461 PubMed ID: 320194
TITLE: Influence of methionine biosynthesis on serine
transhydroxymethylase regulation in Salmonella typhimurium
LT2.
AUTHOR: Stauffer G V; Brenchley J E
SOURCE: JOURNAL OF BACTERIOLOGY, (1977 Feb) 129 (2) 740-9.
Journal code: HH3; 2985120R. ISSN: 0021-9193.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197704
ENTRY DATE: Entered STN: 19900313
Last Updated on STN: 19980206
Entered Medline: 19770415

AB The enzyme serine transhydroxymethylase (EC 2.1.2.1; L-serine:tetrahydrofolate-5,10-hydroxymethyltransferase) is responsible both for the synthesis of glycine from serine and production of the 5,10-methylenetetrahydrofolate necessary as a methyl donor for methionine synthesis. Two mutants selected for alteration in serine transhydroxymethylase regulation also have phenotypes characteristic of metK (methionine regulatory) mutants, including ethionine, norleucine, and alpha-methylmethionine resistance and reduced levels of S-adenosylmethionine synthetase (EC 2.5.1.6; adenosine 5'-triphosphate:L-methionine S-adenosyltransferase) activity. Because this suggested the existence of a common regulatory component, the regulation of serine transhydroxymethylase was examined in other methionine regulatory mutants (metK and metJ mutants). Normally, serine transhydroxymethylase levels are repressed three- to sixfold in cells

grown in the presence of serine, glycine, methionine, adenine, guanine, and thymine. This does not occur in metK and metJ mutants; thus, these mutations do affect the regulation of both serine transhydroxymethylase and the methionine biosynthetic enzymes. Lesions in the metK gene have been reported to reduce S-adenosylmethionine synthetase levels. To determine whether the metK gene actually encodes for S-adenosylmethionine synthetase, a mutant was characterized in which this enzyme has a 26-fold increased apparent Km for methionine. This mutation causes a phenotype associated with metK mutants and is cotransducible with the serA locus at the same frequency as metK lesions. Thus, the affect of metK mutations on the regulation of glycine and methionine synthesis in Salmonella typhimurium appears to be due to either an altered S-adenosylmethionine synthetase or altered S-adenosylmethionine pools.

ACCESSION NUMBER: 92048475 MEDLINE
DOCUMENT NUMBER: 92048475 PubMed ID: 1943695
TITLE: Regulation of methionine synthesis in Escherichia coli.
AUTHOR: Weissbach H; Brot N
CORPORATE SOURCE: Roche Research Center, Roche Institute of Molecular Biology, Nutley, New Jersey 07110.
SOURCE: MOLECULAR MICROBIOLOGY, (1991 Jul) 5 (7) 1593-7. Ref: 47
Journal code: MOM; 8712028. ISSN: 0950-382X.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English

```
=> s methionine/cn
L4            2 METHIONINE/CN

=> d 1-2

L4   ANSWER 1 OF 2  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   63-68-3  REGISTRY
CN   L-Methionine (9CI)  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   Methionine, L- (8CI)
OTHER NAMES:
CN   (S)-2-Amino-4-(methylthio)butanoic acid
CN   .alpha.-Amino-.gamma.-methylmercaptobutyric acid
CN   .gamma.-Methylthio-.alpha.-aminobutyric acid
CN   2-Amino-4-(methylthio)butyric acid
CN   Acimethin
CN   Butanoic acid, 2-amino-4-(methylthio)-, (S)-
CN   Cymethion
CN   h-Met-oh
CN   L-(-)-Methionine
CN   L-.alpha.-Amino-.gamma.-methylthiobutyric acid
CN   L-Homocysteine, S-methyl-
CN   l-Methionine
CN   Methionine
CN   NSC 22946
CN   S-Methionine
FS   STEREOSEARCH
DR   7005-18-7, 24425-78-3
MF   C5 H11 N O2 S
CI   COM
LC   STN Files:   ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS,
       BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB,
       CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU,
       DETHERM*, DIOGENES, DRUGU, EMBASE, GMELIN*, HODOC*, HSDB*, IFICDB,
       IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC,
       PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2,
       USPATFULL, VETU, VTB
         (*File contains numerically searchable property data)
     Other Sources:   DSL**, EINECS**, TSCA**
         (**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.
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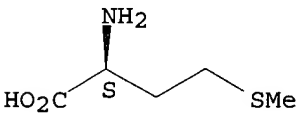


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**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

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             721 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
           33726 REFERENCES IN FILE CAPLUS (1907 TO DATE)
              10 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L4   ANSWER 2 OF 2  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   59-51-8  REGISTRY
CN   Methionine (9CI)  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   DL-Methionine
CN   Methionine, DL- (8CI)
OTHER NAMES:
CN   (.+-.)-Methionine
CN   .alpha.-Amino-.gamma.-methylmercaptobutyric acid
CN   Acimetion
CN   Amurex
CN   Banthionine
```
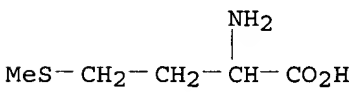

CN Cynaron
CN DL-2-Amino-4-(methylthio)butyric acid
CN Dyprin
CN Lactet
CN Lobamine
CN Meonine
CN Methilanin
CN Metione
CN Neston
CN NSC 9241
CN Pedameth
CN Racemethionine
CN Urimeth
FS 3D CONCORD
MF C5 H11 N O2 S
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DETHERM*, DIOGENES, EMBASE, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**, WHO
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2964 REFERENCES IN FILE CA (1907 TO DATE)
64 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
2967 REFERENCES IN FILE CAPLUS (1907 TO DATE)
3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)